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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,110	07/11/2001	William Holm	0104-0353P	8194

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EXAMINER
KOCH, GEORGE R

ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/902,110	HOLM ET AL.	
	Examiner	Art Unit	
	Sue A. Purvis	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-26,32-39 and 58-80* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-26,32-39 and 58-80* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *14 Mar 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 20-26, 32-34, 36-39, 58-71, and 73-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Kazem-Goudarzi et al. (US Patent No. 5,108,024) and Whitman (US Patent No. 6,026,176).

Applicant admits on pages 1 and 2 of the specification that viscous medium is applied to electronic circuit boards and cameras act as inspection means for determining errors. The measured parameters, including the errors are fed back to the process control and used in order to reduce future errors.

Kazem-Goudarzi discloses that when using a vision system, such as the one set forth in the admitted prior art, the user could choose to repair the defect or discard the defective component. However, there is no discussion in Kazem-Goudarzi on how that decision is made. (Col. 3, lines 37-45.)

Whitman discloses an automated machine vision system with a processing means for inspecting a ball grid array. The processor determines if errors exist and corrects them accordingly or alternatively, determines if the device is too defective according to the standards, at which point the device is failed or discarded. While there is no discussion of the time of repair in Whitman, it is appreciated to one having ordinary skill in the art, that in

deciding whether the errors are worth correcting, that time comes into play. (See Figures 2a, 2b, and 2c.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an inspection system like the one in Whitman in the admitted prior, because Kazem-Goudarzi teaches that repairing a defect rather than discarding it is an option for. Furthermore, Whitman discloses that a vision inspection system can be utilized to determine if the circuit board can or cannot be repaired.

Regarding claims 21, 33, 63, and 69, Whitman includes evaluating means in the inspection system.

Regarding claims 22, 34, 64, and 70, Kazem-Goudarzi discloses that placing solder on the component is one method of repairing the defect.

Regarding claims 23, 36, 65, 71, and 73, the admitted prior art and Kazem-Goudarzi disclose jetting means as the application means.

Regarding claims 24, 37, 66, and 74, for simplicity of design, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the application means and the jetting means for addition viscous material be the same means. One of ordinary skill in the art would appreciate the advantages of having them both be the same.

Regarding claims 25, 38, 67, and 75, the admitted prior art discloses screen printing means.

Regarding claims 26, 39, 68, and 76, contact dispensing means is known in the art.

Regarding claims 58-61 and 77-80, it is appreciated that at least some of the errors found by the vision inspection system would be corrected prior to the hardening of the viscous medium, because the artisan would see the advantages of correcting before the medium is hard. For instance, if part of the medium needs to removed, this would be

virtually impossible if it were hard. Furthermore, the artisan would appreciate the need to correct the errors before the components are mounted thereon.

3. Claims 35 and 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Kazem-Goudarzi and Whitman as applied to claims 32 and 69 above, and further in view of Hikita et al. (US Patent No. 5,740,726).

The admitted prior art in view of Kazem-Goudarzi and Whitman disclose correction methods for defective locations on a circuit board, but does not disclose removing the viscous medium as an option.

As shown in Hikita Table 2, when the item inspected exceeds the desired height, the solution is to remove the excess material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a removing device in the apparatus of the admitted prior art in view of Kazem-Goudarzi and Whitman, because Hikita teaches that removing excess material when needed is within the purview of the artisan.

Response to Arguments

4. Applicant's arguments filed 23 January 2006 have been fully considered but they are not persuasive.

5. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue A. Purvis whose telephone number is (571) 272-1236. The examiner can normally be reached on Monday through Friday 9am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher A. Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sue A. Purvis
Primary Examiner
Art Unit 1734

SP
April 13, 2006